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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,677	05/21/2004	Carles Borrego Bel	8153ES	3676
23688	7590	02/22/2007		
Bruce E. Harang PO BOX 872735 VANCOUVER, WA 98687-2735			EXAMINER AMRANY, ADI	
			ART UNIT	PAPER NUMBER
			2836	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/709,677	Applicant(s) BORREGO BEL ET AL.	
	Examiner Adi Amrany	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed January 12, 2007, have been fully considered but they are not persuasive. First, it is noted that the applicants have not challenged the limitation analysis of the references. Applicants have pointed out the short comings of each reference; these short comings, however, are precisely the reason for adding secondary references.

With respect to Piñas, the fact that the reference discloses the benefits of electrical isolation of the converter does not affect its disclosure of the vehicle-based, dual-voltage electrical system. Piñas also discloses the electrical architecture necessary to supply power to loads at two power levels (column 5, lines 24-45). Applicants conclude with two statements regarding the limitations that Piñas does not meet. These facts were ceded in the non-final rejection (November 21, 2006), which served as the basis for introducing the Turner and Tani references.

With respect to Turner, the battery-disconnect device monitors the direction of current flow in/out of the battery (column 4, lines 35-46) and tracks the time-rate of change. By detecting the charging/discharging of the battery, the Turner system, when combined with Piñas, is detecting the state of the DC/DC converter. If the Piñas DC/DC is ON, supplying the battery B1 with voltage from battery B2, then the Turner system will detect the charging of battery B1 to detect the *predetermined* state of the DC/DC converter. Tuner discloses three connection points; two for the battery terminals, and one for load sensing (column 6, lines 58-60). Through the load sense and the battery

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terminals, Tuner is able to sense, inter alia, a short circuit event. Thus, the Turner system is not independent of the vehicle system. Lastly, that the Tuner system "can be" bypassed when the engine is on and when the hazards are on, does not prohibit its function during other times, such as when the engine is off and all power is being supplied by the batteries.

With respect to Tani, the reference discloses supplying power to loads containing microprocessors (item 110; paragraph 67). Applicants do not appear to challenge Tani except to state what the reference does not disclose, teach or suggest. As shown in the non-final rejection, these limitations are met by Piñas and Turner.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). All three references are related to battery control and management systems. Piñas discloses a vehicular dual-voltage architecture with a converter that allows for sharing between the high and low voltage circuits; Turner discloses a vehicle battery disconnect system; and Tani discloses communicating with vehicle load microcontrollers and controlling the power distribution to those loads.

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Priority

2. Applicants' claim for priority is not accepted. This application was filed under 35 U.S.C. 111(a), which means that there is no priority claim currently present in the application.

Applicants have not complied with the requirements under 37 CFR 1.495(b) in order to enter the national stage. These requirements include payment of basic national fee and a copy of the intentional application within 30 months from the priority date. The International Bureau mails a confirmation (Form PCT/IB/308) to applicant, upon which the applicant can rely that the copy has been provided to the USPTO. See MPEP §1893.01(a)(1). The PTO would indicate any deficiencies in the fees, oath or declaration relating to the status of a national stage application.

Applicants seeking to enter the national stage are advised to use transmittal form PTO-1390, as this form clearly indicates that the submission is under 35 U.S.C. 371. An application that has entered the national stage will be clearly indicated as such by the Office of Initial Patent Examination. See MPEP §1893.03(a). An application not clearly identified as a submission to enter the national stage will be treated as an application under 35 U.S.C. 111(a) (nonprovisional utility application). If the application is accepted for entry into the national stage, the National Stage Processing Division will mail Form PCT/DO/EO/903 indication acceptance of the application under 35 U.S.C. 371 and will stamp the face of the file accordingly.

In accordance with the notice at 1077 O.G. 13 (14 April 1987), if the applicant files a U.S. national application and clearly identifies in the accompanying oath or

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declaration the specification to which it is directed by referring to a particular international application by PCT application number and international filing date and that he/she is executing the declaration as, and seeking a U.S. Patent as, the inventor of the invention described in the identified international application, then the application will be accepted as submitted under 35 U.S.C. 371. Merely claiming priority of an international (PCT) application in an oath or declaration will not serve to indicate a submission under §371. Also, if there are any conflicting instructions as to where the filing is under §111(a) or §371, the application will be accepted as filed under §111(a).

Upon review of the current application: the oath does not indicate the application status as a §371 national stage application; there is no copy of the international application; there is no copy of Form 903; and applicants did not indicate in the original specification that the application is a national stage application. In fact the specification was not amended to indicate such a status until January 12, 2007. Further, it is noted that the applicants first attempted to claim continuation priority (Remarks, July 3, 2006; page 18, lines 9-11) and have only recently attempted to claim a national stage application (Remarks, January 12, 2007; page 10, lines 6-18).

Since the current application was not recognized as a national stage application by OIPE or the NSPD, applicants must file a petition, as indicated in the previous final rejection (August 10, 2006). To convert this application into a 371 application, applicants must file a petition with the PCT Legal Administration under 37 CFR 1.182. To claim priority to the PCT application, applicants must file a Rule 78 petition with the Petitions Office.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinas (US 6,879,057) in view of Turner (US 6,646,845) and in further view of Tani (US 2004/0124703).

With respect to claim 1, Pinas discloses electric power distribution architecture at two substantially different voltage levels (figure 1; column 5, lines 24-36), comprising:

at least a first battery (figure 1, item B12; column 6, lines 1-8) at a first voltage level;

a second battery (figure 1, item B36; column 5, lines 46-48) at a second, substantially higher voltage level, providing a differentiated electric power supply for respective network sectors (figure 1, items R14, R42);

said network sectors having power distribution units (figure 1, item 2; figure 2, item 8; column 5, lines 24-36; column 6, lines 38-52) directing power to loads (figure 1, items 6-7; figure 2, items 35-38);

said at least first battery and sectors that is supplies being fed in turn from the second battery through a converter (figure 1, item 4; figure 2, item 1; column 5, lines 53-62; column 6, lines 8-13);

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said second battery being connected to a voltage generator (figure 1, item A; column 5, lines 46-48).

Pinas does not expressly disclose the electric power distribution architecture comprises an automatic disconnection device, a microcontroller to monitor the state of the first battery, or microcontrollers contained within the power distribution units.

Turner discloses a system for protection against short-circuits in electric power distribution architectures (figure 1, item 10; column 4, lines 1-12; column 6, lines 18-22), comprising:

- a first battery (figure 1, item 12; column 6, lines 43-46);

- an automatic disconnection device (figure 1, item 14; column 6, lines 23-31 and 46-55; column 7, lines 1-4);

- said first battery has an associated module SSM microcontroller (figure 1, item 26; column 7, lines 14-22 and 27-29; column 8, lines 5-10) monitoring the voltage and current at the posts of said battery and sensing an operating state of said converter (column 4, lines 35-46; column 7, lines 30-46);

The Turner battery discharges and supplies power to the loads when the ignition is off and recharges when the vehicle ignition is on (column 8, lines 11-14). Through sensing the state of charge of the battery (direction of current flow), the Tuner controller, when combined with the Pinas architecture, senses the *operating state* of the DC/DC converter. The operating state of the converter controls the charge/discharge function of the first battery, which is sensed by the Turner controller.

Pinas and Tuner are analogous because they are from the same field of endeavor, namely automotive power distribution systems. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the dual voltage system disclosed in Pinas with the short-circuit protection system disclosed in Turner. The motivation for doing so would have been to protect the electrical system in the event of a short-circuit, for example, during a car crash.

Tani discloses an electric power distribution architecture (figures 1-2; paragraphs 64-67), comprising:

- a first battery (figure 1, item 103) with an associated module SSM microcontroller (figures 1-2, item 105; paragraphs 69-70, 73 and 75);

- power distribution units (figure 1, items 110a-110e) controlled by a corresponding microcontroller (paragraph 77, lines 1-6);

- said module SMM microcontroller of battery B1 being connected through a port and a communications network (paragraph 70, lines 11-16) with each one of said microcontrollers of said power distribution units of said loads;

- allowing in a short-circuit situation being sensed by said module SMM microcontroller, according to detection of a predetermined state of said converter, followed by predetermined, sensed voltage and current values, informing each of said microcontrollers of said power distribution units allowing activation of said automatic disconnection device (paragraph 73, lines 4-12).

Tani discloses that the battery SMM microcontroller (105) senses the state of charge of the battery, and transmits the information to the power distribution unit

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microcontrollers. In the event of a short circuit, or other malfunction, the battery SMM microcontroller would transmit a message indicative of the event.

Pinas, Tuner and Tani are analogous because they are from the same field of endeavor, namely automotive power distribution systems. At the time of the invention by applicants, it would have been obvious to one skilled in the art to combine the dual voltage system disclosed in Pinas, the short-circuit protection system disclosed in Turner, and the load controllers disclosed in Tani. The motivation for doing so would have been to protect the electrical system in the event of a short-circuit.

With respect to claims 2 and 3, Tani discloses the use of a communications network (figure 1, item 106). It would be obvious to one skilled in the art that a communications network amongst the plurality of microcontrollers would be either a dedicated network or a shared bus, as those are the common types of networks.

With respect to claims 4-5, Tani discloses that the controller is included in *an assembly* to measure the state of health and state of charge of the battery (figures 1-2, item 105) and to control and manage the loads fed by said battery (paragraph 67, lines 7-10; paragraph 70, lines 11-16).

With respect to claim 6, Pinas discloses power distribution units (figure 1, item 2; figure 2, item 8) that supply power to the loads from the low and high voltage batteries.

With respect to claims 7-8, Tani discloses the loads are *governed* by power switches (paragraph 67). Further, it would have been obvious to one skilled in the art to configure the power switches as FETs (column 6, lines 46-55), in order to allow the Tani

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PDU's (item 110) to control the switches through electric signals. The Tani PDU is not disclosed to contain any moving parts to activate a mechanical switch.

With respect to claim 9, Tani discloses sensing the voltage or impedance at the output of said power switches prior to said controlled load (paragraph 67). It would be obvious to one skilled in the art that the Tani sensors can be placed at various locations along the power transmission line between the battery and the load.

With respect to claim 10, it would be obvious to include another controller for monitoring and controlling a disconnection device for the second battery, since the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CCPQ 1977).

With respect to claims 11-19, Pinas and Tuner disclose the apparatus necessary to complete the recited methods, as discussed above in the rejections of claims 1-10.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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